

# Assessment of Cases of Total Knee Arthroplasty and Their Outcome- A Clinical Study

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## ABSTRACT

**Background:** The present study was conducted to assess cases of total knee replacement and outcome. **Methods:** The present retrospective study was conducted on 86 patients of both genders in which TKA was performed. A thorough clinical examination was performed. Radiological assessment was performed with CT scan. In all patients, type of failure, and need for revision total knee arthroplasty was recorded. **Results:** Out of 86 patients, males were 52 and females were 34. Cases of TKA were infection seen in 54, aseptic loosening in 12, peri-prosthetic fracture in 6, instability in 4, failed unicompartmental knee in 2, patellar clunk in 3, stiff knee in 3, metallosis in 1 and quadriceps disruption in 1. The difference was significant ( $P < 0.05$ ). Clinical outcome was excellent in 84%, good in 10%, fair in 4% and poor in 2%. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found maximum cases of total knee arthroplasty in males and the most common reason was infection and aseptic loosening.

**Keywords:** Total knee arthroplasty, Orthopedics, Quadriceps.

## INTRODUCTION

With the advances in science, the life span of people is increasing, leading to a boost in the numbers of the geriatric population. There is an increase in the number of people suffering from osteoarthritis; and also a considerable increase in the body mass index (BMI) which when combined with sitting cross legged and squatting play a strong role in joint degeneration. Osteoarthritis (OA) is a chronic degenerative joint disease and a major cause of disability in the elderly people. The rapid increase in the prevalence of this disease suggests that OA will have a growing impact on health care and public health systems in the near future.<sup>[1]</sup>

The joints most commonly involved include the hip; knee; distal interphalangeal, proximal interphalangeal, and first carpometacarpal joints of the hand; and cervical, thoracic, and lumbar spine. The concept of improving knee joint function by modifying the articular surfaces has received attention since the 19th century.<sup>[2]</sup>

Total knee arthroplasty (TKA) is one of the most common major surgical procedures being performed. Socioeconomic growth in developing

countries has made the TKA accessible to a very large population of patients with arthritis.<sup>[3]</sup> The replacement prosthesis of choice varies depending on the underlying disease, the severity of knee joint damage, and the age of the patient. Total knee arthroplasty is usually performed in patients aged 60 years or older when the bone and articular cartilage are so severely damaged that there is no other effective therapy.<sup>[4]</sup> The present study was conducted to assess cases of total knee replacement and outcome.

## MATERIALS AND METHODS

The present retrospective study was conducted in the department of Orthopaedics. It comprised of 86 patients of both genders in which TKA was performed. All patients were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc. was recorded. A thorough clinical examination was performed. Radiological assessment was performed with CT scan. In all patients, type of failure, and need for revision total knee arthroplasty was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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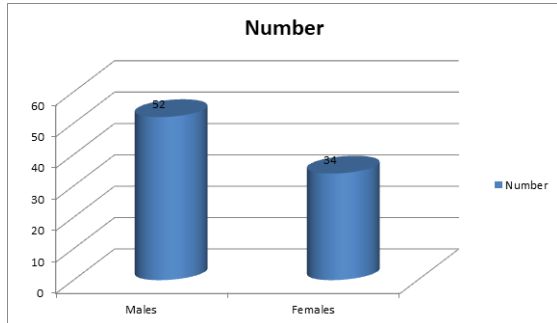
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## RESULTS

**Table 1: Distribution of patients**

Gender	Males	Females
Number	52	34

[Table 1] shows that out of 86 patients, males were 52 and females were 34.

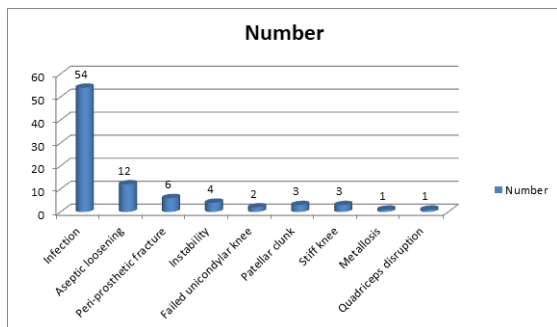


**Figure 1: Distribution of patients**

**Table 2: Reason of TKA**

Reason	Number	P value
Infection	54	0.01
Aseptic loosening	12	
Peri-prosthetic fracture	6	
Instability	4	
Failed unicondylar knee	2	
Patellar clunk	3	
Stiff knee	3	
Metallosis	1	
Quadriceps disruption	1	

[Table 2, Figure 1] shows that reasons of TKA was infection seen in 54, aseptic loosening in 12, peri-prosthetic fracture in 6, instability in 4, failed unicondylar knee in 2, patellar clunk in 3, stiff knee in 3, metallosis in 1 and quadriceps disruption in 1. The difference was significant ( $P < 0.05$ ).

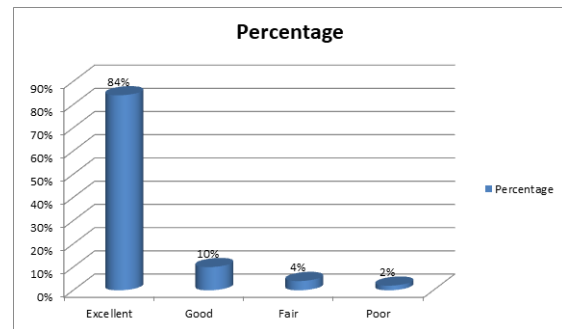


**Figure 2: Reason of TKA**

**Table 3: Grading of knee clinical score**

Grade	Percentage	P value
Excellent	84%	0.01
Good	10%	
Fair	4%	
Poor	2%	

[Table 3, Figure 3] shows that clinical outcome was excellent in 84%, good in 10%, fair in 4% and poor in 2%. The difference was significant ( $P < 0.05$ ).



**Figure 3: Grading of knee clinical score**

## DISCUSSION

Total knee replacement (TKR) has an established place in the treatment of knee osteoarthritis and is considered to be an effective intervention. TKRs are reported to relieve pain and improve mobility, the best published results reporting a ‘good’ or ‘excellent’ outcome in approximately 90% of patients.<sup>[5]</sup> A total knee arthroplasty is the surgical removal of the diseased joint and replacement with a metal hinge joint (prosthesis) that is attached to the thighbone (femur) and the shinbone (tibia).<sup>[5]</sup> In most cases, bone cement is used to fix the prosthesis to the thigh and shin bone.<sup>[6]</sup>

Nowadays, total knee arthroplasty is becoming a standard treatment for arthritic knee in terms of relief from knee pain free as well as it stabilize the knee with an appropriate range of motion and associated with substantial functional improvement.<sup>[7]</sup> Significant advances have occurred in the type and quality of the metals, polyethylene, and, more recently, ceramics used in the prosthesis manufacturing process, leading to improved longevity.<sup>[8]</sup> As with most techniques in modern medicine, more and more patients are receiving the benefits of total knee arthroplasty (TKA). This advances in the knee implant design and the surgical techniques for total knee replacement achieved successful results in reducing the pain and providing with a stable joint.<sup>[9]</sup> The present study was conducted to assess cases of total knee replacement and outcome.

In this study, out of 86 patients, males were 52 and females were 34. Kadam et al,<sup>[10]</sup> conducted a study conducted a prospective analysis of 40 cases of osteoarthritis knee patients at a tertiary care centre in Mumbai over a period of two years. Those patients who underwent total knee arthroplasty were assessed clinically and functionally using knee society score. The mean preoperative knee clinical score (KCS) was  $49.40 \pm 13.79$  which was increased to a postoperative score of  $86.08 \pm 5.64$  at the end of 6 month. Similarly the mean preoperative knee functional score (KFS) was  $32.75 \pm 11.79$  which was increased to a postoperative score of  $84.43 \pm 9.59$  at the end of 6 month. There was significant increase in KCS and

KFC score during follow up at 1, 3 and 6 month interval. There was significant association between knee functional score and knee clinical score at every interval.

We found that causes of TKA was infection seen in 54, aseptic loosening in 12, peri-prosthetic fracture in 6, instability in 4, failed unicondylar knee in 2, patellar clunk in 3, stiff knee in 3, metallosis in 1 and quadriceps disruption in 1. Kurtz et al,<sup>[11]</sup> found that of the 5068 TKA procedures performed, 201 (4%) were first-time revisions. The predominant cause of revisions was prosthetic infection (61%) followed by aseptic loosening (18%) and instability (7%). In the early, mid- term, and late-failure groups, prosthetic infection remained the main cause of failure. In 47% of the septic revisions, the offending organisms could be identified and of those identified most (67%) were Gram-negative. We found that clinical outcome was excellent in 84%, good in 10%, fair in 4% and poor in 2%. Bachmeier et al,<sup>[12]</sup> selected 26 people (30 knees) from the outdoor clinic who gave their informed consent for the study and satisfied our criteria. They were evaluated using the knee society score (KSS), preoperatively and postoperatively at the 3 months follow up and the data was analyzed using the statistical program for social sciences (SPSS). They observed that the mean knee society score improved from 29 to 83.4 and the mean functional score improved from 35 to 83.5. The knee flexion range increased from 56.20 to 1110. Postoperatively all knees were aligned in valgus except for 3 knees. Complication rate was 6.6%.

## CONCLUSION

Authors found maximum cases of total knee arthroplasty in males and the most common reason was infection and aseptic loosening.

## REFERENCES

1. Kurtz SM, Gawel HA, Patel JD. History and systematic review of wear and osteolysis outcomes for first-generation highly cross-linked polyethylene. *Clin Orthop Relat Res* 2011;469:2262-77.
2. Le DH, Goodman SB, Maloney WJ, Huddleston JI. Current modes of failure in TKA: Infection, instability, and stiffness predominate. *Clin Orthop Relat Res* 2014;472:2197-200.
3. Calliess T, Ettinger M, Hülsmann N, Ostermeier S, Windhagen H. Update on the etiology of revision TKA - Evident trends in a retrospective survey of 1449 cases. *Knee* 2015;22:174-9.
4. Oduwole KO, Molony DC, Walls RJ, Bashir SP, Mulhall KJ. Increasing financial burden of revision total knee arthroplasty. *Knee Surg Sports Traumatol Arthrosc* 2010;18:945-8.
5. Hooper G, Lee AJ, Rothwell A, Frampton C. Current trends and projections in the utilization rates of hip and knee replacement in New Zealand from 2001 to 2026. *N Z Med J* 2014;127:82-93.
6. Sharkey PF, Lichstein PM, Shen C, Tokarski AT, Parvizi J. Why are total knee arthroplasties failing today – Has anything changed after 10 years? *J Arthroplasty* 2014;29:1774-8.
7. Bhandari M, Smith J, Miller LE, Block JE. Clinical and economic burden of revision knee arthroplasty. *Clin Med Insights Arthritis Musculoskelet Disord* 2012;5:89-94.
8. Paul PC. Evaluation of 200 cases of knee osteoarthritis in general population: A clinical study. *J Adv Med Dent Scie Res* 2017;5(1):54-58.
9. Kurtz S, Ong K, Lau E, Mowat F, Halpern M. Projections of primary and revision hip and knee arthroplasty in the United States from 2005 to 2030. *J Bone Joint Surg Am* 2007;89:780-5.
10. Kadam RV, Yadav S, Chhallani A, Sharma C. Prospective study of clinical and functional outcome of total knee replacement in osteoarthritic knee. *Int J Res Orthop* 2016;2:240-4.
11. Kurtz SM, Ong KL, Lau E, Widmer M, Maravic M, Gómez-Barrena E, et al. International survey of primary and revision total knee replacement. *Int Orthop* 2011;35:1783-9.
12. Bachmeier CJM, March LM, Lapsley HM, Tribe KL, Courtenay BG, Brooks PM. A comparison of outcomes in osteoarthritis patients undergoing total hip and knee replacement surgery. *Osteoarthr Cart* 2001;9:137-46.

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